



## ORTHOPEDIC PET CUSHION

### BACKGROUND OF THE INVENTION

**(0001)** Field of the Invention

**(0002)** The present invention relates in general to a pet cushion and more particularly, but not by way of limitation, to a pet cushion of orthopedic slow recovery visco-elastic foam providing orthopedic support, with a protective liner of a waterproof, breathable, flexible material enclosing the visco-elastic foam padding and the support padding while protecting the padding materials from liquids of all nature yet allowing for airflow and breathability of the padding layers it serves to enclose.

### Description of the Prior Art

**(0003)** Pets are an important part of the family. Pet owners desire to provide the most comfortable pet cushions and beds as possible; particularly as our pets age this becomes even more important. Older animals often suffer from arthritis, and/or joint and muscle problems making sleeping or laying down for the animal uncomfortable. Most pet cushions are made with a padding material and a fabric cover, but do not address any orthopedic aspects for the pet.

(0004) Typically most pet cushions are made with common polyurethane foam. Common polyurethane foams (high resilience foams) are formulated to be resilient, resisting pressures and pushing against the source of impression. Logically, the foams recovery pressure is greatest at point where the subject is causing the greatest impression (e.g. hips, shoulders, leg joints). With seating, sleeping and other cushioning support surfaces, those pressures generated by common foam become sources of discomfort, as circulation is constricted by the upward force of the foam. These pressure points can, in clinical terms, contribute to the breakdown of skin resulting in the development of pressure ulcers.

(0005) Manufactured by an exclusive process, slow recovery visco-elastic foam is a unique and separate category of foam having characteristics different than all other types of foam. Slow recovery visco-elastic foam can double the surface contact area decreasing the pressure on bony prominences and facilitating blood flow. Slow recovery visco-elastic foam possesses the characteristics of high energy absorbent properties and temperature softening behavior. These properties produce a fluid and firm effect so that the material dissipates energy away from the body. These qualities provide for an exceptionally comfortable cushion as well as being orthopedically beneficial. As referenced in *Introducing the Pressure Support Surfaces from Kaymed* by Pritchard, Barbara in *The British Journal of Nursing*, 2001, Vol 10, No. 21.

**(0006)** Slow recovery visco-elastic foam is a polymer with a gel-like feel which, through its sensitivity to temperature, recognizes shape and pressure and adjusts to distribute load as evenly as possible. It simulates a floatation effect. This provides the orthopedic effect of reducing pressure points while giving additional comfort to the animal using the cushion.

**(0007)** Typically animal cushions in the prior art use a cushioning material of polyester, nylon, high resilience foam, or cotton and possibly a liner which encloses the padding materials. The cushioning materials, without a waterproof liner, can absorb liquids such as urine, blood, animal saliva, and other spilled liquids to the point of saturation making the cushion unsanitary and unhealthy. After a period of use, these beds become foul smelling. In time, the cushion will promote bacterial growth due to the moisture and the body heat of the animal as well as possibly infested with mites and fleas. Cushions can be difficult if not impossible to wash due to their size or material of construction. If the cushion cannot be cleaned, the only remedy is to replace the entire padding which can become costly. Typically, if the prior art had a liner component enclosing the padding materials it was at best of a water repellent nature only and thus not impermeable to fluids, or of an absorbent nature trapping and retaining the fluid.

**(0008)** Technology has introduced numerous high performance fabrics often used in performance outerwear or tents. Waterproof, breathable, and flexible fabrics are now manufactured by numerous sources, under numerous brand names, and are easily available to consumers. These fabrics achieve the waterproof qualities by a close weave fabric, or rely upon either the hydrophilic (water loving) or microporous qualities of materials which come as either a coating or a laminated film.

The quality of breathability is achieved as the molecular chains of hydrophilic material are used as stepping stones by water molecules. The molecules are passed from chain to chain by the force of the temperature/heat differential, until they are released to the outside. Water droplets cannot pass back across the fabric for it is non-porous. These microporous materials are created to have tiny holes within their structure. These holes are large enough for water vapor molecules to pass through yet many times too small to allow the passage of water droplets. A protective liner of a waterproof, breathable, flexible material would protect the cushion padding from absorbing liquids yet allow for airflow which maintains the loft of the padding materials while maintaining the comfort of the cushion long term. In addition, these fabrics are strong, durable, and resist odors and stains making them an ideal fabric of a protective liner in a pet cushion.

**(0009)** Most dirt contains oil. As polyester and nylon are both oil-based fibers, they are attracted to oily dirt, creating a bond between the dirt and the fiber, making it difficult to wash successfully. When dirt falls on hydrophilic fabrics, it rests on a bed of hydrophilic molecules keeping dirt away from the oil-based fabrics. The hydrophilic molecules attract and draw water and soap under the dirt allowing it to easily lift off. Prior art using polyester or nylon materials would prove more difficult to clean than the waterproof, breathable, flexible fabric suggested in the present invention.

**(0010)** There are no examples in prior art which combine slow recovery visco-elastic foam with a protective liner of a waterproof, breathable, flexible material in a cushion or a pet cushion.

**(0011)** A variety of pet cushions, beds or pads are available for domestic animals. U.S. Pat. No. 3,902,456 granted to David features a cloth-covered cushion.

**(0012)** U.S. Pat. No. 5,002,014 granted to Albin features woven polyester strands coated with polyvinyl chloride impervious to liquid and uses polystyrene beads as the cushioning material.

**(0013)** U.S. Pat. No. 5,119,763 granted to Crabtree features an orthopedic pet bed which the orthopedic support is from the quilting pattern fashioned on the filling material.

**(0014)** U.S. Pat. No. 5,144,911 granted to Moore features moisture repelling mattress liner and a water repellent cover with the four basic components which are detachable and removable from each other.

**(0015)** U.S. Pat. No. 5,226,384 granted to Jordan features animal beds whose main functions are pest-resistance and damage resistance using a KEVLAR aramid sheet and a MYLAR polyester sheet. Since neither KEVLAR nor MYLAR are soft comfortable fabrics, a removable cushion is place on top of the shell in order to offer comfort to the animal. Neither KEVLAR nor MYLAR is a flexible material, and MYLAR is very difficult to cut in order to construct the animal bed.

**(0016)** U.S. Pat. No. 5,265,558 granted to Schonrock features molding a one-piece foam bed with a liquid-impermeable closed pore skin. This bed can be used with or without a cover.

**(0017)** U.S. Pat. No. 5,515,811 granted to McAllister features a cushion for an animal, preferably a cat, which is a material of a matted web of layered, electrostatic fibers. This cushion is uncovered.

**(0018)** U.S. Pat. No. 5,588,393 granted to Heilborn II is a pet bed of a collapsible nature.

**(0019)** U.S. Pat. No. 5,685,257 granted to Fiebus features the use of several absorbent layers under the cushion cover with the center most layers being fluid impermeable.

**(0020)** U.S. Pat. No. 5,715,772 granted to Kamrath et al. features an absorbent pad for absorbing pet urine with a one-way moisture barrier.

**(0021)** U.S. Pat. No. 5,724,911 granted to McAlister features raw, unwoven, uncovered polyester.

**(0022)** U.S. Pat. No. 6,173,675 granted to Licciardo features aromatherapy to enhance certain behaviors of the animals that use the mat.

**(0023)** U.S. Pat. No. 6,508,200 granted to Remis features a support cushion wherein the variable support is from helical springs.

**(0024)** A variety of support pads and mattresses are available. U.S. Pat. No. 3,968,530 granted to Dyson features a gel-like fluid; U.S. Pat. No. 4,614,000 granted to Mayer features conical-shaped bubble supports; U.S. Pat. No. 4,706,313 granted to Murphy features foam blocks that can be selectively placed; U.S. Pat. No. 4,777,681 granted to Luck, et al. features foamed material with a plurality of slits; U.S. Pat. No. 4,780,921 granted to Lahn, et al features a cover for a therapeutic support cushion having two separate chambers; and U.S. Patent 5,249,320 granted to Moretz features a reservoir for moisture.

**(0025)** Such pet cushions, mattresses, and mats have been introduced with varying degrees of success. The prior art pet beds however, fail to address orthopedic benefits or the protective benefits of a waterproof yet breathable liner in a pet cushion. The need has arisen for a pet cushion that offers the orthopedic benefits of slow recovery visco-elastic foam with a protective liner that allows the visco-elastic foam to breath while protecting it from liquids of all kinds. Visco-elastic foam is a state-of- the-art material providing the user the therapeutic benefits of even pressure distribution without constricting blood circulation and thereby lessening the risk of pressure points and user discomfort. These qualities provide for an exceptionally comfortable cushion as well as being therapeutically beneficial for animals suffering from arthritis and/or joint and muscle ailments. The liner material takes advantage of the current high performance materials offering waterproof yet breathable and easily cleanable characteristics which creates a hygienic environment for the cushion user.

SUMMARY  
OF THE  
INVENTION

(0026) The primary object of the present invention is to provide a orthopedic pet cushion, made with slow recovery visco-elastic foam, that will overcome the shortcoming of the prior art devices.

(0027) Another object of the present invention is to use a material known to have the orthopedic properties of sensitivity to temperature, recognition of shape and pressure, and the ability to adjust and distribute load as evenly as possible which provides the orthopedic benefits of decreasing the pressure on the bony prominences and facilitating blood flow. Currently the only material known to have the above listed qualities is slow recovery visco-elastic foam.

(0028) Another objective of the present invention to provide an additional second padding layer to the slow recovery visco-elastic foam padding which will give the very flexible visco-elastic foam padding additional support and stability while adding additional overall cushioning for added comfort.

(0029) It is another object of the present invention to provide protection of the padding materials from liquids by a waterproof liner. This waterproof material used for the liner may naturally offer oleophobic, anti-dust mite, anti-odor, anti-bacterial, anti-stain, or anti-static properties in addition to its waterproof property.



**(0030)** It is yet another object of the present invention to provide a waterproof liner material that is also breathable and flexible. The ability of the waterproof liner to breathe allows for airflow and maintains cushion loft for continuing comfort. The flexibility of the liner material is necessary so the liner does not hamper the comfort or cushioning ability of the padding it serves to enclose and protect.

**(0031)** It is another object of the present invention to provide protection of the padding materials. This protection is achieved by a protective liner of a waterproof, breathable, flexible material which totally encloses all padding materials and is sealed shut by an appropriate means such as sewing, gluing, thermal bonding or the like. This protective liner is sealed around the padding materials in such a tight and close-fitting manner, that it prevents the two padding materials from shifting or moving about within the protective liner.

**(0032)** It is yet another object of the present invention to provide an outer cover of a material that is soft, comfortable, hypoallergenic, absorbent, resistant to the adherence of stains, and is highly resistant to breakage or tearing in any direction. The resealable closure allows for easy removal of the cover for washing. The cover is made of a fabric that may be conventionally laundered repeatedly.

**(0033)** To that end, an orthopedic cushion, for pets or humans, which includes a cushion formed from a plurality of layers including two padding layers, one of slow recovery visco-elastic foam and the second of a material that supports the visco-elastic foam while adding additional padding. Then a protective liner made from a waterproof, breathable, flexible material which completely encloses the two padding layers and is sealed around the padding layers in such a tight and close-fitting manner as to prevent shifting or moving about of the padding layers within the protective liner. Finally, around the enclosed padding layers and their protective liner, is a soft comfortable washable cover. This outer cover may be easily removed for washing.

**(0034)** The second supporting padding layer may be made from a textile-based, foam, or rubber material.

**(0035)** The waterproof, breathable, flexible protective liner material may achieve the properties of waterproof and breathability by a number of methods such as, but not limited to, utilizing a hydrophilic coating or laminate, a microporous coating or laminate, a bi-component coating or laminate, a monolithic membrane, a moisture-vapor-transmission (MVT) membrane, or a microfiber of sufficiently close weave as to be waterproof and breathable.

**(0036)** The outer washable cover is comprised of a top surface, a bottom surface and peripheral side walls between the top and bottom surfaces. This outer fabric cover has a releasable closure so that fabric cover may be easily removed washing.

**(0037)** The orthopedic cushion may be constructed in any geometric shape deemed necessary by the user's space needs. Suggested shapes would include, but not limited to, square, round, rectangular, triangular, semi-circle, or pie-shaped.

**(0038)** Further objects of the invention will appear as the description proceeds.

**(0039)** To accomplish the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.